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THUJA ORIENTALIS LINNAEUS

Plate 1.

ERNEST H. WILSON

ONE of the oldest and best known exotic trees in cultivation is *Thuja orientalis* L., the Chinese Arbor-vitae. It was named by Linnaeus in 1753 but he had earlier described it in his Hortus Cliffortianus (p. 449) in 1737, where he states that it was communicated by Cl. Royen. Philip Miller had it in cultivation in the Apothecaries' garden at Chelsea before 1752 and in the seventh edition of his Gardeners' Dictionary states that "The China Arbor Vitae hath not been long in Europe: the Cones of this Tree were sent from China, by some of the French Missionaries; and since this Sort has been introduced into the English Gardens, it has been greatly propagated by Layers and Cuttings; but the Seeds seldom ripen here." The first mention of it in European literature is to be found in Kaempfer's Amoenitates, fasc. v. 884 (1712) under the name of "Fi no ki altera." Whether Royen received it through the Dutch East India Company or whether Miller's version of its introduction is correct I have not been able to discover. In Japan it is commonly cultivated in temple grounds and might easily have been sent direct to Holland by way of Java either as a living plant or as seeds. On the other hand it is abundantly planted in and around Peking and ripe cones, as Miller states, may easily have been sent to France by some Jesuit priest since the first of this order, the famous Matthaeus Ricci, settled in Peking in 1600 and the order has been represented there ever since.

Although known in Europe for nearly two centuries I can find no record of large trees or indeed of specimens showing the real habit of the tree. This is all the more remarkable when its accommodating nature and ease of propagation are remembered. Dozens of forms have originated in gardens and received names, yet a real adult tree seems unknown either in America or in Europe. The books devoted to Conifers, even the very latest, describe it as a bush or tree of columnar or pyramidal habit with erect branches and branchlets and from 20 to 60 ft. tall is given as its height. This description faithfully portrays the tree as we of the West know it, but is far, very far from picturing its real habit. Slow of growth it takes centuries for this tree to obtain its mature form.

During my travels in the Orient I did not see spontaneous specimens

of the Chinese Arbor-vitae, widely cultivated though it is and in many places naturalized. In Korea and Japan it is known only as a planted tree. Its hardiness supports the belief that it is a native of northern China rather than of other parts of the Empire. It is the Poh-tree of the Chinese classics and the fruit, the leaves and the inner bark all have medicinal uses. In the temples the branchlets and pieces of the wood are burnt as incense. In former days the tree distinguished the gardens of princes and sheltered the tombs of emperors, and today it is most commonly met with in gardens and burial grounds. Throughout the New Year festivities, sprays of this fragrant evergreen are used to symbolize long life, happiness and prosperity.

According to J. Hers (in China Jour. Sci. & Arts, IV. 81 [1926]) this Thuja in north China likes low altitudes and is never found at more than 1000 m. above sea level. On the plains together with *Populus tomentosa* Carr., *Ulmus pumila* L. and *Salix Matsudana* Koidz. it constitutes eight-tenths of the flora around villages and in graveyards. Here and there throughout north China magnificent planted specimens of this tree may be seen. Hers (l. c.) states that the most famous specimens he has seen are the Sung Yang Kung Thujas at the foot of Sungshan, one of which was already famous at the time of the Han dynasty (B.C. 255–A.D. 221) and that at Tsin Sze, near Taiyuan Fu, which is supposed to date from the Chow dynasty (B.C. 1122–256). He figures one of the giant Thujas in the Sung Yang Temple with a girth of 38 ft. and states that at Wang Kwai Chen on the Tingchow road to Wutai Shan, there is another very beautiful specimen which is about 10 m. in girth at the base. In Peking, notably in the grounds of the Confucian Temple, in what is now termed the Central Park and at the Temple of Agriculture, there are fine avenues and many magnificent specimens of this Thuja. I have been to some pains to find out the age and history of these trees.

In reply to an inquiry Dr. John C. Ferguson of Peking, an esteemed correspondent of the Arnold Arboretum, informs me that "it is very difficult to give information which might be considered scientifically accurate in regard to the trees in the Temple of Confucius. There are, however, certain well-known facts. This Temple was built during the Yuan (Mongol) dynasty and, in accordance with the custom, trees were planted at that time. The local tradition is that the trees now remaining in the main courtyard were all planted when the Temple was built during the Yuan dynasty with the exception of one tree which is said to have been already there and which must therefore belong to the Sung dynasty. The earliest dated tablet in the Temple enclosure was erected in the 11th year of the Emperor Ta Te, i. e. A. D. 1307. As to the trees growing in the park near the palace (Central Park) there is no means of determining their age further than that we know that the oldest of them could not have been planted earlier than the reign of the Emperor Yung Lo of the Ming dynasty, A. D. 1403–1425."

Dr. Carl TenBroeck of the Peking Union Medical College, writing under date of January 27, 1926, gives the following data gathered by one of his assistants from a book, Ju Hsia Chiu Wen K'oa (Old Stories Under the Sun), published about 1800 which is really a collection of references to Peking gathered from old literature:

"There is a definite record of the establishment of the Confucian Temple in the Kin dynasty 1151. There is a further record of various improvements being made about 1434 and a definite statement of 20 trees being planted at this time. The trees there are evidently of two ages and it is possible that the older trees were planted soon after the establishment of the temple. We cannot, however, make a definite statement about this. We have not found any record of when the trees were planted in the Central Park. Kublai Khan, 1279, built palaces and parks and these were rebuilt by Yung Lo shortly after 1400. Just when the trees were planted we cannot say. The first record of the Temple of Heaven that my man has found shows that it was erected by the Kins about 1200. There is a definite record of its having been rebuilt and enlarged the alterations being completed in 1395 at which time Pines and Cypress (Thuja) were planted."

In the past many cities have occupied the present site of Peking. The Hanlin or Imperial Academy was established there about A. D. 755. The Sung dynasty, which lasted from A. D. 970 to 1260, was driven from Peking in 1118 by the Tartars who established themselves there as the Kin dynasty, only to be driven out by the Mongols in 1234. The famous Emperor Kublai Khan made Peking his capital in 1264 and there the great Venetian, Marco Polo, served him as Advisory Minister.

Through the kindness of Dr. W. T. Councilman, the Arnold Arboretum is in possession of a fine set of photographs of these ancient Thuja trees in Peking and this collection has been supplemented by some excellent photographs generously presented by Dr. TenBroeck who also supplies measurements taken with a surveying instrument. The largest tree photographed by Dr. TenBroeck stands in Central Park and measures 47 ft. 4 inches in height with a trunk 18 ft. 9½ inches in girth at breast height and a crown spreading 48 ft. One in the Confucian Temple is 41 ft. 10 inches in height with a trunk 16 ft. 1 inch in girth and a crown spreading 45 ft. 6 inches. Another in the grounds of the Temple of Heaven is 46 ft. 7 inches in height, with a trunk 12 ft. 6 inches in girth, and a crown spreading 47 ft. 8 inches. The tallest tree measured by Dr. TenBroeck is in Central Park and stands 51 ft. 6 inches high with a trunk 14 ft. 3 inches at breast height. One of Dr. Councilman's pictures shows a tree larger than any of the above, but, unfortunately, no measurements are given. These ancient trees have enormous, massive, contorted branches spreading horizontally and forming open, flattened, rounded crowns. The trunks are clothed with fibrous fissured bark, gray without and red-brown within, and some of them are richly embellished with large and small

burls of fantastic shapes. Nothing could be more unlike the tree we know in western gardens than these old monarchs beneath which Marco Polo may well have rested and found shade during his sojourn at the Khan's court.

LIGNEOUS PLANTS COLLECTED IN NEW CALEDONIA BY C. T. WHITE IN 1923

INTRODUCTORY NOTE

C. T. WHITE
Government Botanist, Brisbane, Australia

EARLY in 1923 Prof. Sargent wrote and asked me if I would undertake to make a brief trip to New Caledonia to obtain specimens of the ligneous plants of the island for the herbarium of the Arnold Arboretum. The whole of October and the early part of November were consequently spent in the field.

On arrival at Noumea I was fortunate in getting in touch with Monsieur I. Franc, a local schoolmaster, who has spent a considerable part of his vacational periods in collecting plants in various parts of New Caledonia, particularly in the neighbourhood of Prony. Subsequently, I was able to obtain from him a very large number of duplicates from his herbarium.

The flora of New Caledonia possesses great interest for the Australian botanist owing to its closest affinities being undoubtedly with those of eastern Australia, particularly Queensland and northern New South Wales. This affinity is represented by at least one family—the Balanopsidaceae—and several genera, e.g. Argophyllum (Saxifragaceae), Callistemon (Myrtaceae), Callitris (Pinaceae), Duboisia (Solanaceae), Fontainea (Euphorbiaceae), Halfordia (Rutaceae) and Kermadecia (Proteaceae) common to the two countries and found nowhere else. Some comparatively large genera common to the two countries though not absolutely confined to them, find their greatest development in them. A case in point is Hibbertia (Dilleniaceae) of which 110 species are known, 89 are found in Australia and 19 in New Caledonia leaving only 2 species, these last being found in Madagascar. A striking feature of the New Caledonian species is their aborescent habit, most of the Australian forms being dwarf undershrubs little more than herbaceous.

Among the capsular-fruited Myrtaceae are several genera common in the respective flora of Australia and New Caledonia and finding a more limited development outside, e.g. Baeckea, Melaleuca, Tristania and Xanthostemon.

The Proteaceae are well represented in both countries, and genera common to both are Grevillea and Stenocarpus. The former genus contains about 180 species, one of which occurs in New Guinea, 14 in New Caledonia and the remainder in Australia. Two of the Australian species also extend to New Guinea. Stenocarpus, on the other hand, finds its